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14. ABSTRACT The overall aim of this study was to evaluate the feasibility and preliminary efficacy of an intervention that adapts Dyck's civilian multi-family group treatment model (MFGT-TBI) for veterans with TBI and their families, to improve the health, mental health and quality of life for veterans and their families. To date, Durham's first and second cohorts have concluded and all follow up assessments have been conducted. In total, 20 participants were enrolled at this site, consisting of 10 veterans and 10 family members, and of which 2 veterans and 4 family members dropped out. In the Bronx, the second cohort has concluded its multifamily group meetings. This cohort had enrolled 8 participants, consisting of 4 veterans and 4 caregivers, of which one 1 veteran and 1 caregiver have dropped out due to scheduling conflicts.					
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Introduction

The overall aim of this study is to evaluate the feasibility and preliminary efficacy of an intervention that adapts a civilian multi-family group (MFG) treatment model for veterans with TBI and their families. A total of four MFGs will be established across three sites. Each MFG will include approximately 6-8 veterans and their caregivers. Participating veterans will be assessed at four points during the course of the study: at baseline and at 3-month intervals during the 9-month treatment period. Expected outcomes for veterans include reductions in psychiatric symptoms and problem behaviors, and increases in community reintegration and quality of life. For caregivers, expected outcomes include reduction of distress, isolation and burden.

Research Accomplishments Associated with Statement of Work Aims/Tasks

Aim 1: To customize Multi-Family Group treatment (MFGT-TBI) to address the specific needs of veterans with TBI and their caregivers.

Aim 1 - Tasks 1: We will adapt the manual for MFGT-TBI used by Rodgers et al for use in the study population and settings. We will review educational material for patients and family members on TBI, and the most suitable selected or adapted for use during the intervention.

The adaptations of the manual for MFGT-TBI and the Educational Workshop were accomplished during the first six months of this study last year, and have been successfully implemented with cohorts in the Bronx and at the Durham site.

Aim 1 – Task 2: We will hire research assessors and train them to obtain informed consent and deliver all study instruments including neuropsychological assessment tools.

Site PIs and clinicians were recruited and hired in the previous year, and were processed by the VA Foundation and through their respective sites as employees without compensation (WOC). In October 2010, a new RA was hired by the Bronx VAMC to replace an existing RA who had to leave for medical reasons and to aid in the implementation of this intervention and all study related tasks. All new RA's were trained on the study instruments and the psychological battery.

Aim 1 – Task 3: We will obtain regulatory review and approval for the study.

Approval to increase the number of participants in the Bronx (i.e. to add another group of up to 8 additional Veterans and family members) was submitted to IRB and DoD in the previous cycle. IRB approved this amendment in April 2010 and DoD approved on December , 2010. Continuing Reviews, including protocols and all require documentation, have been submitted to each sites respective Internal Review Boards and were approved on April , 2011 for the Bronx and October , 2010 for Durham, and have been approved until April , 2012 and October , 2010 by respective IRB and R&D Boards. These documents were also submitted to the USAMRMC on July 12, 2011. Quarterly Technical Progress reports for the previous 3 quarters of the study were submitted to and approved by the USAMRMC.

Aim 2: To evaluate the feasibility of MFGT-TBI within VA by establishing four MFGs.

Aim 2 – Task 1: A minimum of two clinicians per site will be trained to deliver MFGTTBI, one of whom will have prior experience of managing patients with TBI.

This task was accomplished in the initial year of the project..

Aim 2 – Task 2: At the JJPVAMC VISN 3 site and the DVAMC VISN 6 site, two MFGs of 6-8 veterans and their family members will be established.

During the first quarter of this year, in the Bronx, approval from DoD was received to increase the number of participants to enable the implementation of the second MFG (December , 2010). Four couples were recruited but, one couple dropped out of this second cohort prior to initiation

of treatment, due to a scheduling conflict with another service. All other participants completed all phases of the treatment protocol and all scheduled follow up assessments. Attendance was good with all participants attending at least 60% and the majority attending 80-100% of sessions. Unfortunately there was a delay in receiving HRPO approval to initiate the second group in the Bronx (since this had been initially approved for NJHCS), limiting the enrollment period and the number of participants for this group.

At the Durham site, in the past year, the first group completed nine months of treatment underwent continuing and follow up assessments. The second cohort also completed nine months of treatment and underwent assessments. In the first Durham group, one couple withdrew prior to the onset of treatment due to a move. In the second Durham group, one couple withdrew after 5 sessions due to complications in the Veteran's combat-related medical condition. In addition, two family members failed to complete the intervention, 1 because of a divorce action and move to Texas, the second due to a relapse related to her substance abuse disorder. In both cases the Veterans continued to attend sessions. However for those remaining in the group attendance was, as in the Bronx, very high ranging from 50-100% of sessions.

In our final report, we will present a fuller report with statistics about participation rates, completion rates and number of sessions attended by those entering the intervention, thus addressing the critical issue of feasibility more fully. Some general comments are included in the conclusion.

Aim 2 – Task 3: The supervisor for clinicians will rate their competence and fidelity to the MFG model.

At both sites, sessions have been taped and are sent to Diane Norell, the study's multi-family group therapy supervisor, in encrypted form for the rating adherence and competence. While initially, in the Bronx, process notes were used as two veterans refused to be taped, the second group has had all of its sessions taped and sent in accordance with IRB privacy and security regulations. Supervision conference calls between Ms. Norell and the study clinicians have continued on a biweekly basis. The calls, which are held separately for each site, have dealt with the clinical issues surrounding the structure of the group as well as of adherence to the MFG-TBI model. Overall adherence for the study is currently being calculated. The initial impression is that with the exception of the initial group in the Bronx, where the clinicians were "borrowed" as no funding was available to hire clinicians, adherence to the manual was good to excellent.

Aim 2 – Task 4: We will use data from written evaluations by veterans and family members and data from focus groups debriefing clinicians after the first two post-workshop phases to make modifications if needed.

Evaluations by the veterans, family members and clinicians following the first two MFG's were used to make modifications to the protocol. For example, due to a high degree of marital conflict observed in two couples in the initial Bronx group, the second group incorporated education and skills training on communication into the problem-solving protocol. Role-playing of constructive, neutral ways to communicate negative feelings as well as education on the importance of communicating positive feelings and making positive requests was incorporated into group problem-solving sessions and role-playing was sometimes used to demonstrate these techniques. In addition, the need for multi-modal reinforcers of group meetings and skills taught became clear and the clinicians developed more venues for presenting the same information in

somewhat different formats to enhance uptake. These modifications are described in Perlick et al., 2011.

Aim 3: To evaluate MFGT-TBI's efficacy in reducing psychiatric symptoms and problem behaviors and increasing community reintegration and quality of life among veterans with TBI, and reducing caregivers' distress, isolation and burden.

Aim 3 - Task 1: All participants will be interviewed using standardized measures at baseline, immediately after the one- day workshop, and then at three three-monthly intervals until the end of the intervention.

All veteran and family participants were interviewed using standardized measures at baseline were re-assessed a three-monthly interviews until the end of the intervention. Analysis of our pre-post intervention data (0-9 months) using paired t tests on key outcome measures has shown promising results for treatment effects for Veterans in lowering anger expression ($t = 3.183$, $p = 0.01$) and increasing use and perception of social support ($t = -2.43$, $p = 0.03$). For Caregivers, family burden was significantly decreased ($t = 2.533$, $p = 0.035$) and empowerment ($t = -4.728$, $p = 0.002$) was significantly increased, with a reduction in depression scores that bordered on significance ($t = 2.186$, $p = 0.06$). Effect sizes were generally medium to large, even for measures whose significance was in the borderline range, suggesting these outcomes would attain significance as well in a larger sample size. These results can be found in table 1, appended.

We are currently conducting exploratory analyses of secondary outcomes, for the purpose of evaluating these measures for inclusion in a larger study. Please note that the inclusion in Aim 3 to reduce psychiatric symptoms was misstated (prior to my inclusion as PI), as the MFG does not target psychiatric symptoms in either Veterans or caregivers. Rather it targets problematic behavior that interferes with reintegration such as anger expression and isolation. The treatment was not presented as a mental health treatment, but rather a more general approach to helping Veterans and families solve common post-deployment problems. Since we recruited through polytrauma, some but not all Veterans were receiving mental health services. As a result of the treatment's problem-solving approach, 2 Veterans made a decision to seek mental health treatment for comorbid depression but no medication or evidence-based treatment for depression or ptsd was included in this intervention.

Aim 3 – Task 2: Qualitative data will be obtained from focus groups separately of each of veterans, family members and clinicians at the end of the intervention.

In the past year, focus groups were conducted at each site, using a revised Focus Group Guide (Appendix A). The tape recorded dialogue from these focus groups were transcribed and are now being analyzed for the purpose of a second paper that is in the process of being planned and redacted. Some of these data have been presented at conferences (see below). In general, veterans and family members were very positive about the MFG, some offered to come back and help induct new members if the intervention were to be repeated. Some of the preliminary focus group findings are summarized below (bullets reflect abbreviated quote from participants)..

Major themes distilled from focus group transcripts:

1) Normalization of relationship problems

- Just the fact that there are other couples here helped, just to know that I'm not the only one. *(partner)*
- Just coming here and bringing it out in the open, that there's something going on that we need to work on...instead of living like the Cleavers--you know everything is happy and keep it hush hush. *(veteran)*

2) Safe place to raise marital/family problems

- One of the comforting things is being a veteran and knowing that person's a veteran... you know they are not judging you at all, because they've been there. *(veteran)*
- Just coming here and being able to say something, about an issue because at home, if we get into an issue, I shut down, because I'm afraid of what I'm going to do. *(partner)*

3) Structured Group format

- I think *it was good that it was structured* because we could come in here and go off on a tangent about anything but *the structure helped gear us towards actually helping that couple or that person.* *(veteran)*
- And the different perspectives on how to handle problems from other people and what's worked for them, *so you got some tools that you could put in your tool kit* and use later on *(veteran)*

4) Opportunity to help partners understand veterans' experience and struggles

- *There's a few times where I said "I'm not going to go in that store, because I can't handle it. And he really didn't understand that. Coming here is helping him understand the kind of support I need.* *(veteran)*
- *It takes patience, and the more educated we get the more patient we are... if you don't understand the situation then you are going to come off like "she's trying to fight me right now."* *(partner)*

5) What kinds of programs Veterans need:

- When I first came back they put us in a room and a counselor explained, "We're here for you." People saying they're here for you means nothing. It's more important if you *show me* that you're here for me. *Show me that you really care. Show me that you're going to put programs like this in place so that people have a place to go, (crying) that's what's showing me that you care.*

Key Research Accomplishments

- ☑ Recruitment and consenting of 20 veterans and 20 family members to date**
- ☑ Successful completion of the first and second cohort at the Durham site and second cohort at the Bronx site.**
- ☑ Successful completion of follow up assessments for the first cohort at the Durham site and both second cohorts in the Bronx and at Durham.**
- ☑ Submission and approval of research protocol to IRB and R & D committees at the Bronx VAMC and Durham**
- ☑ Review and refinement of assessment protocol**
- ☑ Submission and approval for amendments to IRB protocol for new staff, and increased enrollment in the Bronx**
- ☑ Development of a SPSS database storing data for all participants at both sites.**
- ☑ Undertaking of data analysis and current planning redacting for two new papers.**
- ☑ Weekly administrative and supervisory meeting (2 meetings/week)**
- ☑ Publication of a first journal article in *Professional Psychology: Research and Practice***
- ☑ Oral presentation(symposium) by Dr. Perlick at the Annual meeting of the American Psychological Association, August, 2010, San Diego, CA.**
- ☑ Data presentation by Dr. Straits-Troster at the Symposium presented at the Annual Meeting of the International Society for Traumatic Stress Studies in Montreal Canada in November, 2010**
- ☑ Oral presentations by Dr. Perlick at the annual VHA presentation in Baltimore, Maryland in July 2010 and August, 2011**
- ☑ Oral presentation by Dr. Perlick at the annual MIRECC 3 EAB Presentation, March 2011**
- ☑ Paper presented by Dr. Kristy Straits-Troster at the International Neuropsychological Society Mid-Year Meeting/ASSBI Pacific Rim Conference in New Zealand, July, 2011**
- ☑ Preparation of manuscripts of pre-post intervention data and focus group transcripts for the redaction of two papers.**

Reportable Outcomes

Reportable outcomes to date include our first publication, which was published this year and describes our 6 month data, and various presentations that have taken place in the past year.

Straits-Troster, K, Perlick, D.A. Kline, A., Norell, D., Dyck, D. & J. Strauss. Adaptation of multi-family group treatment for Veterans with traumatic brain injury and their families. Poster presented at the International Society for Traumatic Stress Studies 25th annual meeting, Atlanta, GA. (Nov. 2009) (Abstract appended in previous report)

Perlick, D., Cristian, A., Straits Troster, K., Kline, A. (Aug 2009). Multifamily group intervention for OIF/OEF traumatic brain injury survivors and their family members. Poster accepted for presentation at Military Health Research Forum (MHRF), Kansas City, MO. (Materials appended in prior report)

Perlick, D.A., Straits-Troster, K., Cristian, A.. (July 2010). Multifamily group intervention for OIF/OEF traumatic brain injury survivors and their family members. Paper presented at the VHA Mental Health Conference, Baltimore, MD, July, 2010. (Presentation appended in previous report).

Perlick, D.A., Straits-Troster, K, Norell, D., Close, J., Berger, N., Bonuck, E., Taber, K.H., Calvin, D., Dolber, T., Cristian, A, Dyck, D. (August 2010). Adaptation of multifamily group Treatment for Veterans with traumatic brain injury and their families. Paper presented at the American Psychological Association Meeting, San Diego, CA., August 2010. (Abstract appended in previous report).

Perlick, D.A., Straits-Troster, K, Dyck, D., Norell, D., Strauss, J.L., Henderson, C., Close, J., Berger, N., Bonuck, E., Taber, K.H., Calvin, D., Dolber, T. & Cristian, A. (2011). Multifamily group treatment for veterans with traumatic brain injury. *Professional Psychology: Research and Practice*, 42, 70-78. (Appendix B)

Straits-Troster, K., Strauss, J., Tupler, L., Dyck, D., Norell, D., Misal, M., Holman, C., Perlick, D. (2011). An Adaptation of Multi-Family Group Treatment to Support U.S. Veteran TBI Survivors and their Families. Paper presented at the International Neuropsychological Society (INS) mid-year meeting held in conjunction with 4th Pacific Rim Meeting of the Australian Society for the Study of Brain Impairment (ASSBI) in Auckland, New Zealand. *Brain Impairment*, 12, S15-16 (Appendix D).

Perlick, D.A., Straits-Troster, K., Cristian, A.. (August 2011). Multi-Family Group Intervention for OEF/OIF Traumatic Brain Injury Survivors and Their Families. Presentation at the VHA Mental Health Conference, Baltimore, MD. (Appendix C)

PA-11-202 (R21) (Application under review)

Multiple Family Group to Build Skills and Coping for High Risk Military Families

PI: Deborah Perlick, Ph.D; Laurel Kiser, Ph.D

The goal of this project is to develop and assess the feasibility and preliminary efficacy of a multi-family group (MFG) intervention to improve child and family outcomes among OEF/OIF/OND Veterans and families. The model, based on a manualized MFG for multiply-traumatized civilian families, represents the first intervention for this cohort to directly involve children in the treatment. By bolstering family, couples and child coping skills and support networks, the intervention aims to reduce the risk for child behavior problems and distress that limit growth and impair functioning.

In addition, we plan to apply for funding for an RCT based on these preliminary results from an open trial.

Conclusion

Major results to date involving the socio demographic and clinical characteristics of our population were summarized in our previous annual report. Furthermore, significant initial findings are reported and summarized in our first publication which, at the time of this report last year, had been provisionally accepted for publication in the *Professional Psychology: Research and Practice*. Please the final published version of this article in Appendix C.

Our overall findings, their implications and future recommendations can be summarized as follows:

- Analysis of our pre-post intervention data has shown significant intervention effects even for a small sample on key behavioral measures for Veterans (anger expression reduction and social support seeking) and on more subjective measures for caregivers (family burden and family empowerment) with medium to large effect sizes on most measures, even those with borderline significant trends. These results are promising.
- Our qualitative data, summarized above demonstrate that overall Veterans and family members find the MFG helpful and feel that it fills a unique place in the spectrum of services available for Veterans. Several Veterans commented that with the presence and support of other Veterans they could begin to openly disclose and get help with the problems they experienced in reintegration which impacted on family life. Without the presence of other Veterans the perception was that there was no way they could possibly explain their symptoms or experience to their family members. With other Veterans present it was possible to begin to create a bridge to allow healing within families.
- The value that the Veterans and families found in the MFG, which also developed a social network that extended beyond formal group sessions, was demonstrated in their relatively high (from 50%-100% attendance) for those who entered and continued in the treatment beyond the first few sessions.
- However, there is a need for intensive up-front investment from skilled clinicians in order to successfully induct Veterans and families into the treatment who are stable enough to benefit from this treatment. Although crisis intervention can be done and participants can be triaged as needed, the multi-family group is not a crisis intervention. Since deployment and re-integration is often associated with crises in personal and work lives, and families differ in their resiliency and ability to learn in a structured setting during times of crisis, a method for evaluating the 'readiness' of families for this intervention would be helpful in increasing retention particularly in the pre-treatment and early phases of treatment. It may be that for more fragile families, additional, individual joining sessions are required until they become more integrated into the group in order to increase retention. In addition while our numbers are small, our impression is that groups that were more homogeneous, i.e. comprised of couples only, and/or comprised of Veterans who did not differ greatly in cognitive capacity of rehabilitation progress is key to maximizing the success of the group. Our initial group in the Bronx consisted of individuals with very mild TBI and those at the severe end of moderate. In our first group, a couple where the Veteran had only minimal impairment, was employed and working on relationship issues withdrew, stating they had difficulty relating to other group members whose behavior was visibly more disorganized and disinhibited. While

both the more moderately and mildly impaired might benefit from the MFG, based on our experience it is not helpful to combine Veterans families at different levels of impairment and struggling to solve different life problems. Our impression is that more attention to group composition and/or modifications to the Joining process would increase retention and overall feasibility. At the same time, it must be recognized that this cohort is by nature highly mobile and unsettled: divorce, lawsuits, moves related to economics and family issues, incarceration and substance abuse of Veterans and/or spouses makes it inevitable that some Veterans will like the group approach and will enroll but find they are not able to follow through. Future research should build in predictors of group retention to increase feasibility.

- A randomized, controlled trial is needed to evaluate the extent to which the findings were due to simply lavishing extra attention on these veterans and families.

References

Perlick, D.A., Straits-Troster, K, Dyck, D., Norell, D., Strauss, J.L., Henderson, C., Close, J., Berger, N., Bonuck, E., Taber, K.H., Calvin, D., Dolber, T. & Cristian, A. (2011). Multifamily group treatment for veterans with traumatic brain injury. *Professional Psychology: Research and Practice*, 42, 70-78.

Table 1

Effect of Multifamily Group Treatment on Family Members and Veterans with mTBI								
	Veterans				Family Members			
	Pre-treatment \bar{X} (sd)	Post-treatment \bar{X} (sd)	t	d^{\dagger}	Pre-treatment \bar{X} (sd)	Post-treatment \bar{X} (sd)	t	d^{\dagger}
AX Total (anger)	35.8 (13.2)	27.4 (14.3)	3.18**	.61	29.4 (10.6)	20.9 (11.0)	1.69	.79
Duke Social Support Scale	12.9 (6.3)	26.3 (21.4)	2.53*	.85	16.3 (7.2)	18.5 (7.9)	1.18	.30
CES-D (depression)	27.4 (10.7)	19.6 (11.1)	1.73	.72	19.7 (12.7)	10.1 (6.0)	2.19	.96
PCL (PTSD)	58.0 (12.3)	49.3 (8.7)	1.99	.82	--	--	--	--
Burden	--	--	--	--	30.4 (19.4)	12.4 (15.7)	2.53*	1.03
Empowerment	--	--	--	--	38.4 (8.0)	49.1 (4.4)	4.73**	1.66

* $p \leq .05$ ** $p \leq .01$ (two-tailed tests) \dagger Cohen's d

Appendix A: Focus Group Guide for Multifamily Group

Multifamily Focus Group Questions:

1. What were some of the problems you were struggling with when you joined this group that influenced your decision to join?
2. What goals did you have for the MFG?
3. In what ways did the group help you to move towards solving your problems or towards attaining your goals?
4. In what ways did the MFG assist you both in reducing stress in your lives?
5. In what ways did the educational information provided assist you both?
6. What did you like or not like about the formal problem-solving exercises. What would you change about it?
7. In what ways have the social connections and support from other members been helpful to you?
8. What did you appreciate most about the MFG?
9. How would you improve the MFG experience?
10. Would you recommend that VA add an MFG to its regular clinical services?
11. Any addition comments, thoughts or recommendations?

Appendix B: VHA Mental Health Presentation, August 2011

**MULTI-FAMILY GROUP INTERVENTION FOR
OEF/OIF TRAUMATIC BRAIN INJURY
SURVIVORS AND THEIR FAMILIES**

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Katherine Taber, PhD, Larry Tupler, PhD, Robin Hurley,
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Funded by Department of Defense W81XWH-08-2-0054; VISN 3 & 6 MIRECC's

**Multi-family Group Therapy for OEF/OIF
Veterans with TBI: Rationale**

- ❑ 22+% of surviving soldiers combat wounded in Iraq and Afghanistan are estimated to have traumatic brain injury
- ❑ Survivors face physical, cognitive, behavioral and emotional problems affecting community re-integration
- ❑ Survivors' spouses, parents and children face long-lasting changes to family life and their roles within the family
- ❑ Multi-family group therapy, an EPB for SMI, has also been shown to improve outcomes for survivors of civilian TBI and family members (Rodgers et al., 2007)

Aims of Present Study

Aim 1: To adapt the Multi-family Group Therapy model to address the needs of OEF/ OIF veterans with TBI and their family members.

Aim 2: To evaluate the feasibility and efficacy of MFG for OEF/ OIF veterans with TBI and their family members.





Overview of Multi-family Group Therapy

- ❑ **Joining:** two or three sessions with individual TBI survivors and families.
- ❑ **Educational Workshop:** 5-6 hour educational workshop with all the TBI survivors and families.
- ❑ **Group Meetings:** once every two weeks for 9 to 12 months, with all the TBI survivors and families. Group meetings are led by the family clinicians. Group meetings provide education, support, practical guidelines and solutions to everyday problems.

Problem Solving MFG Meetings

Structure	
❑ Initial Socializing	15 minutes
❑ Go Around	25 minutes
❑ Select a problem to work on	5 minutes
❑ Solving a problem	40 minutes
❑ Final Socializing	5 minutes

Formal Problem Solving

STEP 1		Define the problem/issue
STEP 2		List all possible solutions
STEP 3		Discuss pros/cons of each
STEP 4		Choose solution that best fits situation and plan how to implement

Sample Problems Selected

- ❑ **Improve coping with memory problems** to reduce family conflict over forgetting scheduled activities
- ❑ **Deal with work stress** and reduce negative impact on family
- ❑ **Improve communication** so partner feels less shut out, rejected when veteran is coping with PTSD symptoms
- ❑ **Increase positive behavioral exchanges** between partners
- ❑ **Veteran's acceptance of need for mental health treatment**
- ❑ **Reduce social isolation** and increase sense of purpose

Adaptations for MFG for Veterans with TBI and Family Members: Highlights

- ❑ **Format** – Educational workshop delivered over 2 sessions using multiple modalities, visual enhancement
- ❑ **Contents** – Education on TBI pathophysiology, diagnosis, treatment, comorbidity, military experience, Veteran and family impact
- ❑ **Specifications for couples** – Joining: normalization of marital conflict, acceptance, negative impact of PTSD, customized skills training, Formulation: couples' functioning, goals, commitment contract
- ❑ **Intervention aids** - Multimodal reminders of sessions, active interventions to keep members on task

Demographics of Study Sample

Variable	Veterans (N=20)	Family Members (N=20)
Age (years)	34.9 ± 8.5	34.1 ± 11.3
Gender (% Male)	17 (85.0)	2 (10.0)
Ethnicity (%)		
Caucasian	9 (45.0)	8 (40.0)
African-American	8 (40.0)	5 (25.0)
Hispanic	3 (15.0)	7 (35.0)
Marital status: % Married/ Cohabiting	13 (65.0)	16 (80.0)

Demographics of Study Sample

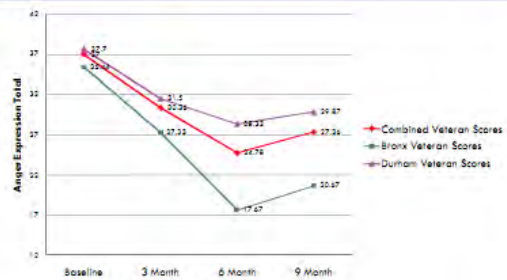
Variable	Veterans (N=20)	Family Members (N=20)
Employment Status (%)		
Full Time	7 (35.0)	10 (50.0)
Part Time	4 (20.0)	3 (15.0)
Unemployed/ Disability	7 (35.0)	5 (25.0)
Student	2 (10.0)	2 (10.0)
Education (>est grade) %		
12th	7 (35.0)	7 (35.0)
Post 12th	13 (65.0)	13 (65.0)

Clinical Features of Study Population

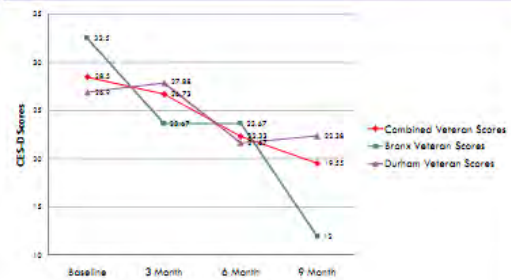
- ❑ 75% of veterans and 40% of family members score above the standard cut-off (>20) on a self-report scale for depression
- ❑ 65% of veterans and 20% of family members screened positive for mood disorder on the PHQ
- ❑ 70% of veterans scored above the cut-off for PTSD on the PCL
- ❑ Veterans showed mild to moderate deficits in verbal memory, attention and executive functions

Veteran Data

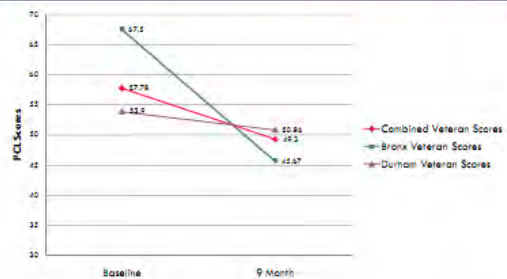
Veteran: Anger Expression Scores



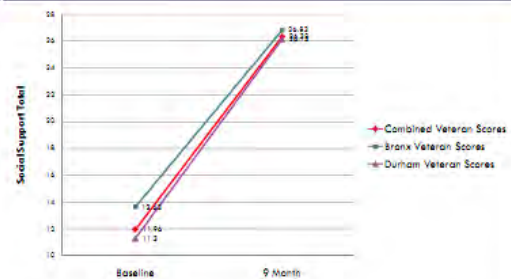
Veteran: Depression Scores



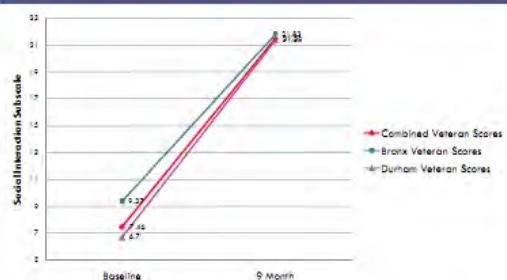
Veteran: PTSD Symptom Scores



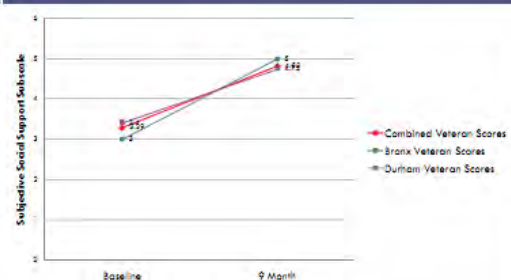
Veteran: Duke Social Support Total Scores



Veteran: Duke Social Interaction Subscales

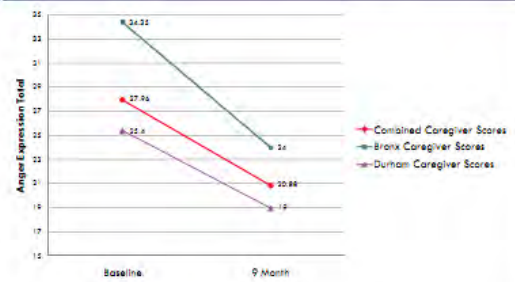


Veteran: Duke Subjective Social Support Subscale

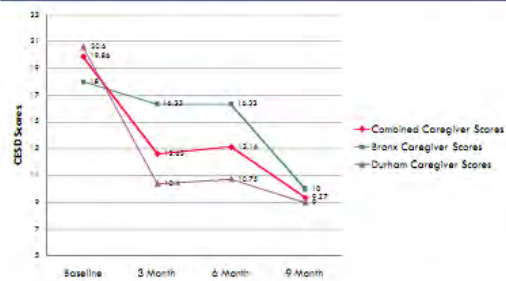


Family Member Data

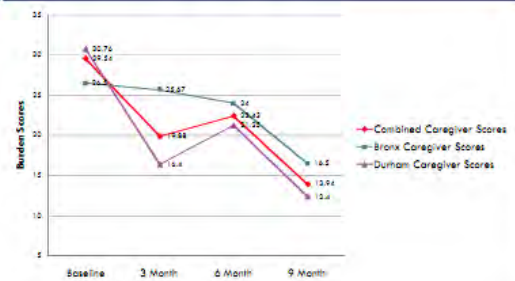
Family Members: Anger Expression



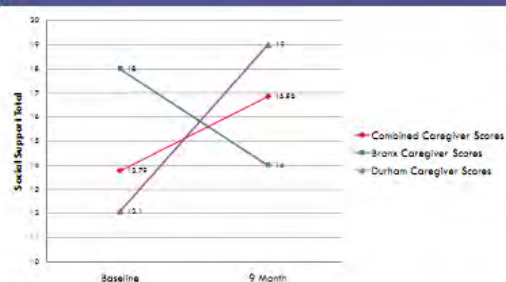
Family Members: Depression Scores



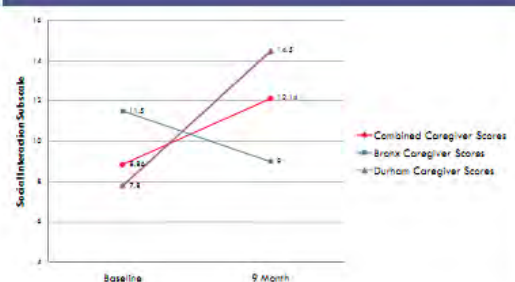
Family Members: Family Burden



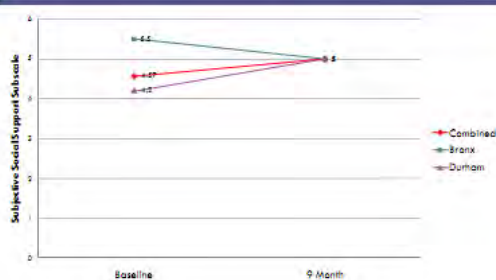
Family Members: Duke Social Support Total Scores



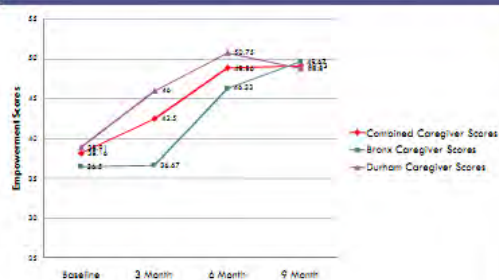
Family Members: Duke Social Interaction Subscale



Family Members: Duke Subjective Social Support Subscale



Family Members: Empowerment Scores



Qualitative Data

Normalization of relationship problems

- Just the fact that there are other couples here helped, just to know that I'm not the only one. (partner)
- Just coming here and bringing it out in the open, that there's something going on that we need to work on...instead of living like the Cleavers--you know everything is happy and keep it hush hush. (veteran)

Safe place to raise marital/family problems

- One of the comforting things is being a veteran and knowing that person's a veteran... you know they are not judging you at all, because they've been there. (veteran)
- Just coming here and being able to say something, about an issue because at home, if we get into an issue, I shut down, because I'm afraid of what I'm going to do. (partner)

Structured Group format

- I think it was good that it was structured because we could come in here and go off on a tangent about anything but the structure helped gear us towards actually helping that couple or that person. (veteran)
- And the different perspectives on how to handle problems from other people and what's worked for them, so you got some tools that you could put in your tool kit and use later

Opportunity to help partners understand veterans' experience and struggles

- There's a few times where I said "I'm not going to go in that store, because I can't handle it. And he really didn't understand that. Coming here is helping him understand the kind of support I need. (veteran)
- It takes patience, and the more educated we get the more patient we are... If you don't understand the situation then you are going to come off like "she's trying to fight me right now"

What kinds of programs Veterans need:

When I first came back they put us in a room and a counselor explained, "We're here for you." People saying they're here for you means nothing. It's more important if you show me that you're here for me.

Show me that you really care. Show me that you're going to put programs like this in place so that people have a place to go, (crying) that's what's showing me that you care.

Conclusions and Limitations

- **Feasibility:** Although the MFG was labor intensive to implement at the front end, 60-80% of participants attended each session, and all would have continued.
- **Acceptability:** Veterans felt that the opportunity to discuss family adjustment problems in a group setting with other veterans was important to their recovery.
- **Generalizability:** Results based on small-scale open trial. A larger-scale RCT is needed to demonstrate efficacy.

Appendix C: Perlick et al., 2011: Multifamily group treatment for veterans with traumatic brain injury.

Multifamily Group Treatment for Veterans With Traumatic Brain Injury

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A common clinical problem encountered by clinicians treating veterans who incurred traumatic brain injury (TBI) while serving in Afghanistan in support of Operation Enduring Freedom (OEF) or in Iraq in support of Operation Iraqi Freedom (OIF) is lack of knowledge about TBI on the part of the veterans' family members. Insufficient information can exacerbate marital or family conflict and lead to psychological distress and social isolation for the veteran and family, and suboptimal illness management for the veteran. To address this problem, we adapted Multifamily Group Treatment (MFGT), an evidence-based practice for treatment of serious mental illness (SMI), for treatment of OEF/OIF veterans with TBI and their families. We have implemented the adapted treatment (MFG-TBI) in four groups of veterans and families ($N = 20$ veterans and 20 family members) across two sites: the Durham VA Medical Center (VAMC) in North Carolina and the JJ Peters VAMC in the Bronx, New York. Adaptations focused on contents and format of the educational components, specification of a protocol for conjugal couples, and the addition of an ecomap to identify support systems during the joining (i.e. assessment) phase, a shorter (9 months) intervention duration, and a more active clinician role including use of motivational enhancement, intersession support, and coordination with other service providers. Biweekly group sessions were supervised and rated for adherence. We illustrate how MFG-TBI both educates and builds problem-solving skills with clinical examples. Suggestions for effective use of problem-solving skills with this population are offered.

Editor's Note. This article was submitted in response to an open call for submissions concerning the provision of Psychological Services by practitioner psychologists to veterans, military service members, and their families. This collection of 12 articles represents psychologists' perspectives on the mental health treatment needs of these individuals along with innovative treatment approaches for meeting these needs.—JEB

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continued

Keywords: multifamily group, combat veterans, traumatic brain injury

Traumatic brain injury, an injury or concussion associated with brief loss of consciousness or altered mental state, has been termed a "signature" injury of the ongoing military operations in Iraq and Afghanistan since 2001 (Hoge et al., 2008). At least 22% of soldiers wounded in Afghanistan in support of Operation Enduring Freedom (OEF) and in Iraq in support of Operation Iraqi Freedom (OIF) are estimated to have traumatic brain injury (TBI); the actual incidence may be even higher due to delayed diagnosis of milder cases of closed head injury (Okie, 2005). Complicating the recovery of this cohort is a high degree of comorbidity: A recent study found that 71% of OEF/OIF veterans reporting loss of consciousness or altered mental states had comorbid posttraumatic stress disorder (PTSD; Hoge et al., 2008), and comorbid depression and

other mental health conditions are also common (Cohen et al., 2009). Thus, veterans surviving a TBI face a variety of physical, cognitive, behavioral, personality, and emotional problems, with consequent barriers to productive living and community reintegration (Hoge et al., 2008; Lew et al., 2006).

The sequelae of TBI affect not only survivors; these injuries may have a dramatic impact on the lives of veterans' spouses, parents, and children, who must confront and learn to cope with long-lasting changes to family life and roles within the family. Yet family members frequently lack important information about the veteran's condition, prognosis, treatment, and home assistance needs, contributing to misguided expectations, disappointment, frustration, family conflict, and child distress (Collins & Kennedy,

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2008; Cozza et al., 2010). Programs to support and involve family members early in the service members' recovery are available for families of more severely injured individuals, who may be transferred to Walter Reed Army Medical Center (WRAMC) for treatment and rehabilitation following medical evacuation from trauma centers in Baghdad, Iraq, and Lundstuhl, Germany. However, when the service member is discharged and returns home, the local veterans Administration Medical Center (VAMC) may be equipped with fewer resources for rehabilitation, and family members may experience a sharp contrast in their engagement with their veteran's treatment. Family resources and education about TBI and care management may not be available for less severely injured individuals not requiring medical evacuation or those who were diagnosed with TBI after their separation from military service. Thus, in many cases, there is a gap between the needs of veterans and their families for family education and support, and the continued availability of such services within the current Department of Defense and Veteran's Administration continuum of care. Because informed support and encouragement by family members are critical to the veteran's reintegration into civilian life, and family discord has been associated with poor therapeutic alliance and lower rates of return to productivity (Sherer et al., 2007), this is a critical gap to fill.

This paper describes our initial experience with an intervention model we have developed to bridge this potential gap in services. The intervention, multifamily group treatment for TBI (MFG-TBI), is an adaptation of a family and evidence-based model for the treatment of serious mental illness (SMI) emphasizing education and problem solving (McFarlane, 2002). The method is currently being implemented and evaluated at two VAMCs: the JJ Peters VAMC in the Bronx, New York, and the Durham VAMC in North Carolina. Like veterans with SMI and their families, veterans with TBI and their families have many needs that can be addressed with a problem-solving approach. But there are also important differences between these two groups, requiring some adaptations to, or further specifications of, the original model. In this paper we will describe some of these differences and how they have informed our adaptation of the model.

Multifamily Group: Original Model for Treatment of Serious Mental Illness

Multifamily group treatment (MFGT or MFG) treatment is a psychoeducational management strategy originally developed by William McFarlane to assist families and mental health care consumers with schizophrenia to improve their coping, illness management, and relapse prevention skills (McFarlane, 2002). Clinicians work with 6–8 consumers together with their family members using an interactive, structured approach centered around solving everyday problems the members experience. The treatment consists of three sequential phases: (1) "joining," in which the clinicians meet with each individual family for 2–3 sessions; (2) an educational workshop, which provides information about the illness and group treatment model to all consumers and families; and (3) biweekly group meetings for all families for 12 months. MFG has been rigorously tested in the management of consumers with schizophrenia and has been found to be effective in managing symptoms of SMI, reducing adverse events (hospitalizations, relapse), and improving functioning (Dyck et al., 2000; Dyck, Hen-

dryx, Short, Voss, & McFarlane, 2002; McFarlane, 2002), as well as reducing caregiver distress and improving health outcomes for consumers and families (Hazel et al., 2004; McDonnell, Short, Berry, & Dyck, 2003).

Adaptation of Model for Traumatic Brain Injury

More recently, Dyck, and colleagues (2000; 2002) adapted the MFG intervention for civilians surviving a TBI (i.e., civilian survivors), retaining the structure and format of MFG for SMI but modifying the contents. Preliminary results for 14 civilian survivors and family members showed decreased reports of depressive symptoms, anger expression, and increased life satisfaction for survivors, and reduced burden for family members (Rodgers et al., 2007). These findings suggested that MFG could benefit veterans with TBI and their family members, and comprised the basis for further adapting the original MFG model to the treatment of OEF/OIF combat veterans with TBI. Sherman and colleagues reported very good participation, retention, and program satisfaction rates for an adaptation of MFG for veterans with PTSD and mood disorders and their families—called Reaching out to Educate and Assist Caring, Healthy Families" (REACH), suggesting the basic MFG model is acceptable to, and addresses the needs of, veterans and veteran families (Sherman, Fischer, Sorocco, & McFarlane, 2009). In adapting the MFG model for military TBI sustained during active combat, we considered the following key differences between our cohort of combat veterans and the original SMI population: differences in the onset of the illness or injury (relatively acute, traumatic onset during adulthood vs. more gradual onset during adolescence), context of the illness or injury (active combat vs. civilian life) and common comorbidities (multiple mental health and medical comorbidities vs. a more limited range), differences in the relationship of the family member participant to the affected individual (predominantly spouses vs. predominantly parents for SMI), and differences in ethnicity and sociodemographic status (a greater proportion of ethnic and racial minorities vs. a more representative sample for SMI). The often acute, traumatic nature of the TBI, and its associated cognitive limitations and comorbidities, has posed special challenges to engagement and retention of group participants, together with acute functional problems (e.g., housing transitions), developmental issues (pregnancy, child care), and financial problems characteristic of this predominantly younger, more ethnically diverse and socioeconomically challenged cohort of veterans. The military experience and its impact on the family as a whole have influenced the contents and structure of the educational workshop, while the predominance of conjugal couples in our sample and in the larger OEF/OIF cohort with TBI has suggested changes in the joining sessions that incorporate basic techniques and practices common to most couples' interventions toward repairing and preserving the marital relationship and addressing parenting concerns. Due to the high comorbidity between TBI and PTSD, and the extensive PTSD literature on family impact and intervention, we have drawn from this literature as well as from the TBI literature.

In the remainder of this paper, we describe specific adaptations to the original MFG model and the rationale for each adaptation, beginning with treatment engagement and proceeding with each treatment component (i.e., joining, workshop, and group sessions) in the sequence in which they occur in both the original model and

our adapted model. For convenience, the adaptations are summarized in Table 1.

Treatment engagement. Although not a formal component of the MFG model, we include this factor because the engagement of combat veterans in mental health treatment has been acknowledged to present special challenges, requiring an expanded repertoire of therapeutic skills. Elucidation of the barriers to engagement of veterans and veterans' families in mental health services, in general, and among veterans who served in Vietnam and in Iraq or Afghanistan, in particular, has been the focus of recent qualitative research (e.g., Sherman, Blevins, Kirchner, Ridener, & Jackson, 2008; Straits-Tröster et al., in press) as well as large-scale surveys (Eaton et al., 2008; Hoge, Castro, Messer, McGurk, & Koffman, 2004). Both logistical (e.g., work schedules, difficulty scheduling appointments, child care problems, money for transportation or parking, confusion about benefits, distance from hospital, unawareness of available services) and attitudinal/emotional barriers (lack of recognition of problems, hopelessness/resignation, fear of worsening problem, concerns about privacy/confidentiality, stigma concerns, self-help ethic, and feeling "overwhelmed" by the transition back to civilian life) have been identified.

Table 1

Adaptations for Multifamily Group for Veterans With Traumatic Brain Injury

MFG Component	Adaptations
Engagement	<ul style="list-style-type: none"> • Engagement: motivational enhancement, stigma reduction • Liaison: more active liaison with other service providers
Joining sessions	<ul style="list-style-type: none"> • Joining aids: inclusion of ecomap of support network • Specifications for conjugal couples – Pre-workshop education (normalization of marital conflict/distress, health benefits/costs of positive vs. negative thinking, acceptance, negative impact of PTSD) – Introduction of skill tailored to couple's situation – Formulation: couples' functioning, goals, commitment contract
Educational workshop	<ul style="list-style-type: none"> • Format: delivery of materials spans two sessions • Contents: education on TBI and comorbid conditions (e.g., PTSD) – Diagnosis, pathophysiology, treatment, and impact – Visual enhancement of slide presentation – Presentation reinforced with handouts
Group sessions	<ul style="list-style-type: none"> • Multimodal reminders: distribution of meeting schedule, placement of reminder calls, aid with PDA entry • Intersession support: individual family sessions as needed • Relevant handouts, e.g., Building Strong Families: Communication for Couples • Focusing strategies, e.g., engage members to record solutions • Summary session: review and reinforce coping strategies

While, overall, these barriers to family participation in mental health treatment are not unique to OEF/OIF veterans with TBI, our experience suggests that two may present particular obstacles to engagement and/or retention for our cohort. The experience of being too overwhelmed to seek out mental health care, particularly specialized services such as family psychoeducation, is consistent with our clinical observations that our cohort does indeed bear an enormous burden in coordinating their health care, which may include appointments with a polytrauma physician, mental health care (including treatment for PTSD and/or depression), speech therapy, vocational counseling or rehabilitation, acupuncture (for pain), and general medical appointments, with childcare and work and/or school schedules. In addition, OEF/OIF veterans frequently have to cope with acute psychosocial difficulties, such as loss of housing, legal complications, and so forth. Given that TBI often compromises organizational abilities and memory, fitting the MFG into their schedules and remembering appointments, particularly during the engagement or joining phase, represents a true challenge.

Second, while mental illness stigma has clearly been identified as a barrier to care for consumers with SMI (e.g., Perlick, 2001; U.S. Department of Health and Human Services, 1999), for prospective MFG participants in the National Guard or reserves who may contemplate return to combat, stigma may represent an even larger disincentive, as use of mental health services may adversely affect chances of promotion (Straits-Tröster et al., in press). Hoge et al. (2004) reported that soldiers who screened positive for a mental disorder were at least twice as likely to report concerns about being stigmatized as those who did not, and only 23–40% actually sought mental health care. Veterans with TBI may also avoid mental health treatment due to concerns about exposing cognitive deficits, particularly in a group setting, and/or due to comorbid PTSD symptom of emotional numbing and avoidance (Sherman et al., 2008). Given the realistic concerns about repercussions of mental health service use on a military career, the relative acuteness of the TBI, and the frequency of comorbid PTSD, participation in the MFG may be perceived as more threatening and stigmatizing to veterans with TBI than a multifamily group for individuals with SMI.

While there is no perfect solution to address the barriers described, clinicians can take some proactive steps to increase engagement and reduce premature termination. The MFG clinician, serving as a liaison to primary mental health or rehab providers, can be helpful in tailoring a schedule that is more doable for the veteran and that accommodates participation in the MFG. This is consistent with the original MFG model, but in the TBI cohort, more activity in this role is needed. To address stigma concerns, the therapist can help inoculate participants against stigma concerns from the outset by raising them in the context of a motivational interviewing (MI; Miller & Rollnick, 2002) paradigm, where the therapist, veteran, and family member explore the pros and cons of engaging in the treatment and "change talk" is elicited. The MI paradigm would also be useful in examining and reconciling the logistical difficulties discussed above. Against the "cons" of stigma and scheduling would be the pros of group and therapist support, learning problem-solving skills, and learning that other veterans and family members share common difficulties. Based on a recent interview study, Sherman et al. (2008) reported that veterans and partners tend to consider a "decisional balance"

between the perceived benefits of participation in family services and the perceived barriers. Thus, MI may tap into, and help consolidate, the results of an ongoing process. MFG clinicians can also help participants to formulate stigma concerns as problems that can be addressed during problem solving. Finally, it may help to emphasize that the MFG is a problem-solving rather than a trauma-focused intervention, thus reducing some of the anxiety that both veterans and family members may experience about coming to a group with other injured veterans.

Joining sessions: Ecomap of support network. In the original MFG model, a genogram is used to identify family members in multiple generations, some of whom have most likely had an SMI. This is helpful in beginning to educate family members about the genetic, biological nature of mental illness with respect to their own families. We added an ecomap, also referred to as a sociogram (Hartman, 1978). Like the genogram, the ecomap is a visual tool, but it differs from the genogram in that it looks beyond the individual and his or her family to depict the relationships between the individual or family and his or her social network (Hartman, 1978). It provides information regarding the family's social network size, diversity, stability, and available resources. In constructing an ecomap, the identified individual is placed in a center circle and lines are drawn from the center to outer circles representing other individuals, faith communities, or organizations with which the individual interacts, with a solid line describing a strong, positive relationship, and a broken one describing a more tenuous relationship. This method helps the family and clinician to evaluate the strengths and challenges in the social environment and to identify where additional supports may be needed. Our veterans, whose deployments and/or PTSD symptoms had often resulted in disrupted ties, found this to be a useful diagnostic and treatment planning tool.

Specifications for conjugal couples. In our small study cohort, 56% of Durham participants and 100% of Bronx participants were married or cohabiting. These numbers are consistent with those reported by Hoge and colleagues: In their study of 2,525 U.S. Army soldiers returning from Iraq with mild TBI, 61–62% were married (Hoge et al., 2008). While it is important to recognize that OEF/OIF veterans with TBI present for treatment with varied family constellations, we also recognize that the original MFG model was not developed to address the needs of conjugal couples in which one member has a serious neurobehavioral disorder. Historically, clinicians have adapted established, general treatment models for specific work with couples and/or combat veterans. For example, in the post-Vietnam era, established family intervention models such as Behavioral Family Therapy (BFT; Mueser & Glynn, 1999) and Integrative Behavioral Couple Therapy (IBCT; Jacobson & Christensen, 1996) were adapted to meet the unique needs and problems of couples with a member affected by PTSD. Examples include Integrative Behavioral Couple Therapy for Posttraumatic Stress Disorder (Erbes, Polusny, MacDermid, & Compton, 2008) and Adjunctive Behavioral Family Therapy (Glynn et al., 1999). While these models differ in theoretical orientation and practice, implicit in all is a recognition that the symptoms of PTSD are disruptive to marital relationships (e.g., Sherman et al., 2008). Veterans suffering from PTSD are at increased risk for divorce and consideration of divorce, decreased couples' satisfaction, and increased difficulties with childrearing (Galovski & Lyons, 2004). Recent studies of OEF/OIF veterans

and other cohorts with TBI have also underscored the effect of the neurobehavioral, emotional, and personality changes associated with TBI on family burden and coping, which are particularly pronounced among spouses, as compared to parents (e.g., Collins & Kennedy, 2008; Kreutzer, Gervasio, & Camplair, 1994).

A major focus in work with conjugal couples who have become emotionally detached is to foster reestablishment of emotional and physical intimacy and interdependence (Erbes et al., 2008; Monson, Fredman & Adair, 2008). To achieve this goal for couples within the context of the MFG, we have specified a protocol for couples entering the MFG that maps onto the standard MFG joining protocol and additionally incorporates three basic "generic" cornerstones of couples interventions: education, skills training, and conveying a formulation of the prototypical behavioral patterns and feelings that maintain the couple's distress.

Education. In keeping with recommendations of Erbes et al. (2008), we begin the treatment with education aimed at engaging couples who are often emotionally disconnected. Three basic areas are covered. First, the couples' distress, conflict, and difficulties functioning as a couple in parenting, financial planning, intimate relations, and so on are normalized as being common problems that many couples in their situation share. The clinician helps the couple to cognitively reframe their problems in relation to the military experience, the strains of separation, coping with the TBI/PTSD, and difficulties in constructing a new life that respects and accommodates all of the above (Collins & Kennedy, 2008). Second, the therapist strives to counter negative thinking and pessimism related to the depressive symptoms that frequently characterize both veterans and family members (Eaton et al., 2008; Hoge et al., 2004) through education about the health benefits of positive thinking and the potential harm of negative thinking, including perpetuating symptoms of depression (Kreutzer, Marwitz, Godwin, & Arango-Lasprilla, in press). It is useful to emphasize that the MFG promotes positive thinking because it is focused on solving problems. Third, assuming that PTSD is present, the therapist educates the couple about the ways in which the avoidance and emotional numbing aspects of the disorder can negatively impact the relationship (Sherman, Zanotti, & Jones, 2005).

Skills training. The second component of the MFG couples' joining protocol is introduction of a skill or tool the couple can use to begin to counteract the threats to the relationship posed by conflict, avoidance, and depression. Our experience is consistent with the recommendation by Monson et al. (2008) that it is important for the therapist to begin to reduce negative relationship behavior as quickly as possible. The therapist tailors the particular skill to the particular couple's needs. Demonstration of problem solving gives couples a "preview" of, and helps prepare them for, the group work, while provision of such communication training (CT) skills as giving positive feedback, making positive requests, and expressing negative feelings (Mueser & Glynn, 1999) can help lay the foundation for constructive problem solving in the MFG, particularly where avoidant behavior and emotional disengagement are high. When one couple opened a joining session stating they were not speaking to one another, after a brief inquiry (i.e., to assess for domestic partner violence or major life event) and subsequent normalization of marital conflict for OEF/OIF veterans and spouses, the therapist introduced CT. Participation in this exercise enabled this estranged couple to give positive feedback to

one another while making eye contact. To their surprise, they discovered they were pleased by actions the other member had taken during the past week. In this instance, use of CT offered a fast-acting inroad to undermine a cycle of negative communication. In contrast, an early couple whose multiple conflicts were not addressed in joining began to argue during an analysis of the couple's strengths and weaknesses to the point where one member left the room and seldom participated in group sessions.

Formulation. The third component of the MFG couples' joining protocol is the delivery of a basic behavioral formulation of how the couple functions (i.e., the strengths and weaknesses of the relationship), the major areas of conflict, and how the couple can benefit from the MFG. Here it may be useful to introduce the concept of emotional acceptance (Erbes et al., 2008). To do so, the therapist suggests that the couple can begin to move toward attaining their relationship goals by accepting and trying to understand their partner's perspective, rather than by criticizing and insisting that the partner make behavioral changes that he or she may not be equipped to make at the present time. This can be done either explicitly and/or more implicitly through educating each member about the unique challenges and difficulties experienced by the other. In our experience, many family members do not possess a basic understanding of the symptoms of TBI or PTSD and therefore tend to personalize them (Sherman et al., 2005), while many veterans have a relatively limited appreciation of the difficulties their partner has endured during the couple's separation and of his or her resulting needs and frustrations. Acceptance facilitated by explicating and validating both partners' perspectives can help to break a negative relationship stalemate. Coupled with skill acquisition (e.g., positive behavioral exchange through communication training or problem solving), it can begin to alter the emotional climate of the relationship and facilitate attendance and participation in group problem solving. As Sherman et al. (2005) point out, "enhancing partner acceptance is powerful and often results in behavioral change" (p. 628). Finally, the therapist also asks the couple to evaluate and affirm their commitment to working on the relationship in the MFG. It should be noted that some components of the protocol described for couples (e.g., early education, introduction of a skill) may be useful to veteran/family member dyads that are not a couple, especially where symptoms are acute and/or the conflict level is high.

Educational workshop. The workshop was modified in both format and contents.

Format. In order to minimize information overload for individuals with memory problems and to accommodate the busy schedules of the veterans and their families, the workshop was divided up over 2 weekday evenings rather than adhering to the original 1-day format.

Contents. The workshop materials used by Dyck and colleagues (Rodgers et al., 2007) in a civilian TBI study were modified to include information on the military experience, the pathophysiology and treatment of TBI associated with blast injury, and comorbid conditions. To help deliver this information, local experts were enlisted to give presentations on brain functions/dysfunctions and basic neuroanatomy, TBI related to improvised explosive devices and motor vehicle accidents, and associated functional limitations and PTSD. In addition, the workshop slides were customized to allow for easy viewing by cognitively impaired individuals. This included reduction of the amount of ma-

terial presented on each slide, use of high contrast typeface and background, insertion of color images to facilitate attention and concentration, and distribution of color handouts of the presentation for reference. The contents of the workshop are summarized in Table 2.

To reinforce and supplement the material presented at the workshop, participants were given handouts, including summary pamphlets, posters summarizing the MFG structure, and brochures on community resources.

Group meetings. The overall structure of group meetings followed the prescribed sequence of the original model, beginning with a brief socialization period; proceeding to a check-in with each family; followed by problem formulation, solving, and planning; and ending with another brief socialization. The problems identified by veterans and family members clustered into three areas: (1) family and relationship issues (e.g., reduced or poor communication, parenting conflicts, and partner frustration with behavior related to the veterans' cognitive deficits and symptoms of PTSD or depression); (2) veterans' problems related to cognitive deficits or mental disorders (e.g., losing or misplacing important items, forgetting to take medications, trouble setting goals or planning realistically); and (3) veteran self-identity and community interface (e.g., difficulty accepting limitations, difficulty negotiating work or school accommodations).

Challenges observed with conducting group meetings with this cohort included lack of carry-over of educational material from the workshop to the group sessions for use in problem solving; difficulty adhering to the structured group format outlined above, particularly for more cognitively impaired individuals; and difficulties with emotion regulation following or during group sessions. In some groups, the check-in with each family was complicated by occasional perseveration by veterans, expression of intense family tensions, and/or introduction of acute problems, for example, homelessness. Several measures were taken to enhance carry-over of material presented in the workshop to the group sessions. A color-printed binder of the slides was distributed to each group member. To further enhance understanding of the problems reported by veterans and family members' problems in relation to the military experience, TBI, and comorbid conditions, the MFG clinicians brought in additional educational material related to specific problems raised by group members. For example, we distributed "Communication for Couples: Tips for Military Members and Their Families" after a problem-solving session focusing on communication difficulties. At times, active redirection was required by MFG clinicians to maintain the problem-solving format of the group when more impaired individuals lost track of the task at hand, including asking one member to step out of the room for an individual discussion. However, even groups experiencing initial difficulties in working within the model were able to learn and use the problem-solving format more productively over time. For example, to address a veteran's problem identified as "Remember to order prescription refills," the group generated a solution including the following items: (1) use multiple reminders, such as a white board, (2) use the "snooze" or "later" option when dismissing PDA reminders, and (3) use a pillbox. In a subsequent session, the veteran reported no longer dismissing PDA reminders and using the whiteboard for other reminders. Problem solving was used to address family members' needs as well. For example, to address the problem "Improve self-care when dealing with work

Table 2
Educational Workshop for OEF/OIF Veterans and Family Members

Main topic	Main contents
DAY 1:	<ul style="list-style-type: none"> • <i>Pathophysiology</i>: TBI is sustained from focal, diffuse axonal, or blast injuries
TBI: Psychoeducation on TBI and its treatment	<ul style="list-style-type: none"> • <i>Symptoms</i>: headache, dizziness, tinnitus, insomnia, apathy, problems with memory, attention/concentration, balance/vision, emotion regulation • <i>Social Sequelae</i>: difficulty following, recalling conversations, interpreting nonverbal cues, modulating verbal expression • <i>Treatment</i>: use of medication, speech, physical, and behavioral therapies, compensatory strategies
MFG for TBI: How it can help	<p><i>MFG for veterans with TBI Provides:</i></p> <ul style="list-style-type: none"> • <i>Education</i>: guidelines to improve family relationships and communication • <i>Social support</i>: increases support network for veterans and families
DAY 2: Impact of deployment on veterans and families	<ul style="list-style-type: none"> • <i>Reintegration stressors</i>: injuries/disabilities, adjustment to civilian lifestyle, altered relationships, and changed roles/responsibilities within the family • <i>Posttraumatic stress disorder is</i>: a common condition associated with TBI, characterized by reexperiencing, hyperarousal, avoidance, and emotional numbing, and impacts spousal and parent-child relationships
The family and adjustment	<ul style="list-style-type: none"> • <i>Common responses</i>: loss, grief, anger, frustration • <i>Loss for persons with TBI</i>: physical/cognitive functioning, personal freedom • <i>Loss for families</i>: Loss of partner as s/he knew him/her, loss of leisure/personal time • <i>Coping strategies</i>: normalize feelings, focus on positives, avoid criticism, self-blame, use educational, health/mental health services

stress and partner's moods," the group recommended that the family member (1) engage in physical activity outdoors (e.g., cutting wood) or (2) post a sign saying, "I am out for private time." The family member reported feeling better and losing weight as a result of cutting wood.

Some group members required additional support between group sessions to be able to participate. For example, one family member noted that her partner became agitated and grandiose after sessions. This veteran tended to use avoidant coping strategies (e.g., wishful thinking) to cope with the challenges of rehabilitation, and these were undercut by the problem-focused orientation

of the group, leaving him feeling exposed and vulnerable. Separate individual sessions for the veteran and his partner were required to address this, which then allowed the couple to return to the group. For conjugal couples presenting with high conflict, adjunctive couples sessions were sometimes used to address highly charged or conflictual issues that could not be optimally handled within the group or that were deemed disruptive to group problem solving. In other cases, individual couples' sessions were employed when recommended as a solution to a couples-focused problem, for example, communication regarding parenting.

While from a traditional group therapy perspective, working with group members outside of the group might be viewed as diluting the effectiveness of the group work, in our clinical experience with this model to date, used judiciously, they both facilitated and enhanced the group experience. When individual couples sessions were scheduled, it was done with the knowledge and/or endorsement of the group, and the purpose of the session (e.g., to negotiate more effective procedures for communication about child care) and outcomes (fewer "missed calls," arguments) were discussed with the group. Using this approach, the individual couples' sessions served as an extension of the group work rather than as a separate venue that took important issues outside of the group domain.

Finally, to facilitate consolidation of learning during the intervention and reinforce the positive efforts of the participants, the clinicians led the group in a structured summary exercise where the different coping strategies the group members had learned and implemented from problem-solving exercises were written on a white board. This provided a forum for the group members to give positive feedback to one another.

Summary, Future Directions, and Implications for Clinical Work

Multifamily group treatment for SMI is a widely used intervention with a well-established evidence base. It offers a supportive environment in which families and mental health consumers can come together and learn a new approach for addressing their everyday problems of living. We have adapted this model to be responsive to the needs of OEF/OIF veterans with TBI and comorbid conditions and their families. Table 2 summarizes the adaptations and additions we have made to the SMI model to date, as discussed here. It should be emphasized that, given the substantial evidence base for the original model, few of these changes were initiated at the outset of the study. Rather, our approach in this treatment development study has been to assess the clients' needs and implement changes on an ongoing, yet systematic, basis (i.e., through discussion with the study investigators, clinicians, and MFG supervisor) that is responsive to clinical need. We are currently manualizing the changes we have implemented so that the adapted model can be systematically implemented and evaluated in subsequent trials. Although the demographics and needs of these veterans and family members differ from those in the original SMI studies, initial clinical anecdotal evidence suggests that the basic problem-solving model can be helpful to OEF/OIF veterans and families with relatively minor, yet important, modifications to accommodate their needs, deficits, and life situations. As this study was designed as a feasibility/demonstration project, we

are assessing change in veteran and family member distress and clinical symptoms, functioning, and coping strategies over the course of the intervention and post-intervention using standard psychometric measures; these data will be reported separately. Our experience with this model to date suggests that clinicians working with OEF/OIF veterans and family members might consider the following points:

- (1) The value of teaching and practicing **problem solving skills** with this population. The frequent transitions and adjustments in relation to work, school, parenthood, and other significant life events experienced by this cohort, occurring in the context of cognitive impairments and separation from the military, can overwhelm and deplete coping resources. The systematic practice of problem solving provides veterans and family members with a skill set that promotes adaptation and greater effectiveness in negotiating these transitions.
- (2) The importance of **repetition** from multiple sources over multiple time points, including review of material from prior sessions, and provision of educational handouts to ensure learning and transfer of training beyond the treatment setting.
- (3) The importance of **assessing and addressing** factors that may interfere with learning problem solving (e.g., agitation, disinhibition, marital/relationship conflict).
- (4) The value of using **positive feedback** to reinforce finding solutions to problems and implementation of solutions, to model the use of positive feedback, and to empower veterans and family members.

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Appendix D: International Neuropsychological Society (INS) mid-year meeting/4th Pacific Rim Meeting of the Australian Society for the Study of Brain Impairment (ASSBI) presentation, July 2011

**VA Mid-Atlantic
MIRECC**
Mental Illness Research, Education & Clinical Center

An Adaptation of Multi-Family Group Treatment to Support U.S. Veteran TBI Survivors and their Families

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Multi-Family Group Treatment for OEF/OIF Veterans with TBI

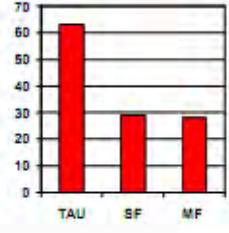
- 19.5% of service members returning from combat in Iraq and Afghanistan are estimated to have a probable TBI (RAND Report 2008)
- Survivors face physical, cognitive, behavioral and emotional problems affecting community re-integration
- Survivors' spouses, parents and children face long-lasting changes to family life and their roles within the family
- Multi-family group treatment, developed by MacFarlane (1996) for SMI, has been adapted for civilian TBI and shown to improve outcomes for both survivors and family members (Rodgers et al., 2007)

Multi-Family Group (MFG) Treatment

- MFG treatment is an evidence-based form of family psychoeducation originally developed for SMI
- The goal of MFG treatment is to improve every day management skills and to improve family relationships
- Strategies include skills training in problem solving, goal setting and adhering to family guidelines
- Meta-analyses have demonstrated greater recovery for consumers with family treatment as compared to individual treatment or treatment as usual

Impact of Single-Family, Multiple-Family, and Combined Approaches on Relapse Rates in Major Outcome Trials

- Average relapse rates across 11 RCTs (N = 895)
- Mean length of treatment = 19.7 months



Approach	Average Relapse Rate (%)
TAU	~65
SF	~30
MF	~28

McFarlane, W.K., Ollendick, T.H., & Lohr, D. (2002). Family psychoeducation and relapse rates in major outcome trials. *Journal of Family Psychology*, 16, 212-218.

The Spokane MFG Study for Civilian TBI and Spinal Cord Injury

Treatment development study:

- 27 survivors; 28 caregivers
- Nine-month group intervention
- Pre-Post Assessment, 9-mos follow-up

Findings:

- Survivors reported a decrease in depressive symptoms and anger expression and an increase in life satisfaction
- Family caregivers reported a significant reduction in burden

Rogers, M., Steele, A., Norell, D., Short, R., Becker, B., & Dyck, D.G. (2007). *Am. J. of Phys. Med. and Rehab.*, 2007

Aims of Present Study

- Adapt the Multi-Family Group Treatment model to address the needs of OEF/ OIF veterans with TBI and their family members
- Evaluate the feasibility and efficacy of MFG for OEF/ OIF veterans with TBI and their family members

Overview of Multi-Family Group Treatment

- **Joining:** Each TBI survivor and a family member meet for 2-3 sessions with a study clinician
- **Educational Workshop:** Includes all participating TBI survivors and families
- **Group Meetings:** Once every two weeks for 9 months, led by the family clinicians.
 - Group meetings provide education, support, practical guidelines and practice in generating solutions to everyday problems.

Problem Solving MFG Meetings

Structure

- | | |
|-------------------------------|------------|
| • Initial Socializing | 15 minutes |
| • Go Around | 25 minutes |
| • Select a problem to work on | 5 minutes |
| • Solving a problem | 40 minutes |
| • Final Socializing | 5 minutes |

Adaptations for MFG for Veterans with TBI and Family Members: Joining

- **Joining aids:** genogram, SWOT analysis, ecomap
- **Specifications for conjugal couples:** normalization of marital discord, teaching listening skills
- **Workshop Format:** 2 sessions vs. all day
- **Workshop Content:** TBI, blast injuries, co-morbid conditions (PTSD, Depression, SUD)
 - Visually enhanced presentation, color copies and notebooks provided

Perlin, Strala-Trotter, Dyck et al., Professional Psychology: Research & Practice, 42(1), 2011

Adaptations for MFG for Veterans with TBI and Family Members: Group Sessions

- **Multimodal reminders of sessions** – distributed advance schedule of meetings, reminder calls, aid with PDA entry
- **Active interventions to keep members on task** – e.g., engaged members as recorders during problem-solving
- **Intersession support** – individual family sessions as needed, motivational enhancement, addressed PTSD symptoms
- **Summary Session** – added summary session to review and reinforce coping strategies implemented during MFG

Demographics: Age, Gender, Ethnicity & Marital Status

Variable	Veterans N = 20	Family Members N = 20
Age (years)	35.0 8.6	34.1 11.3
Male Gender (%)	17 (85.0)	3 (15.0)
Ethnicity (%)		
Caucasian	8 (40.0)	8 (40.0)
African-American	8 (40.0)	8 (30.0)
Hispanic	3 (15.0)	4 (20.0)
Other	1 (5.0)	2 (10.0)

Family member roles include: 15 spouses/committed relationships, 2 sisters, 1 brother, 1 mother, and 1 adult daughter

Demographics: Employment Status & Education

Variable	Veterans	Family Members
Employment Status (%)		
Full Time	8 (40.0)	11 (55.0)
Part Time	3 (15.0)	3 (15.0)
Student	3 (15.0)	1 (5.0)
Education Level (%)		
High School or less	8 (30.0)	8 (40.0)
Some College	6 (30.0)	6 (30.0)
College Grad	8 (40.0)	6 (30.0)

Baseline Cognitive Status

Brief Assessments	Mean ± SD	CVLT	Mean ± SD
MMSE (Total score)	27.8 ± 2.9	Immediate free recall trials 1-5 (T-scores)	44.5 ± 14.8
Trails A (T-score)	39.1 ± 12.0	ST free recall (Z-scores)	+0.88 ± 1.6
Trails B (T-score)	39.0 ± 10.9	ST cued recall (Z-scores)	+0.88 ± 1.2
WAIS Scaled Scores		Long free recall (Z-scores)	+1.0 ± 1.3
Similarities	8.4 ± 1.4	Long cued recall (Z-scores)	+0.81 ± 1.3
Digit Symbol	8.6 ± 2.6		
Letter Num Seq	8.6 ± 3.6		

80% mild TBI (LOC < 30 min.)
80% TBI source was IED blast injury

Clinical Features of Study Population

- Over 80% of Veterans scored above the cut-off (≥ 50) for PTSD on the PTSD Checklist (PCL)
- 90% of veterans and 60% of family members scored above the standard cut-off (≥ 16) on a self-report scale for depression (CES-D)
- Veterans performed below average in verbal memory, attention and executive function

Problems Reported for Use with Group Problem Solving

Family and Relationship Issues

- Family "walking on eggshells" to avoid emotional outbursts
- Reduced emotional or physical intimacy, isolation
- Time demands on burdened spouse/family
- Frustration with veteran's symptoms, cognitive problems
- Difficulty managing finances
- Parenting conflicts and disagreements
- Binge drinking

Problems Reported for Use with Group Problem Solving

Veteran Problems Related to TBI/PTSD

- Losing or misplacing important items (keys/wallet/phone)
- Forgetting to take medications or reorder them when low
- Missing important medical and family appointments
- Erratic driving causing accidents, getting lost
- Trouble setting goals or planning realistically
- Acting/making decisions impulsively
- Trouble modulating anger, negative thinking, hopelessness
- Communication problems, misinterpreting others

Problems Reported for Use with Group Problem Solving

Identity/Interfacing with community

- Grief about loss of military retirement dreams
- Grief about loss of partner as s/he used to be
- Difficulty accepting one's new limitations
- Feeling damaged or self-conscious
- Knowing how to tell others about TBI
- Difficulty negotiating work accommodations

Case Example of Problem Solving

Case Example: Steps	Veteran
Select and define goal/issue	Remember to order prescription refills
Select a strategy from group-generated solutions after discussing pros/cons	<ul style="list-style-type: none"> Use multiple reminders, e.g. write key appointments on household white board. Hit "snooze" or "later" when dismissing PDA reminder. Use a pillbox. Group member shared unobtrusive pillbox that could be used to facilitate adherence.
Results	<ul style="list-style-type: none"> No longer dismissing medication reminders Using white board for other issues.

Family Member Adjustment

Variable	Baseline	3 months	6 months
CESD Depression Scale*	24.6 ± 8.0	13.9 ± 9.2	13.1 ± 12.5
Caregiver Burden*	29.3 ± 19.4	25.0 ± 20.1	22.4 ± 19.3
SF-36 General Health*	2.4 ± 1.0	2.6 ± 1.3	1.8 ± 0.8
Family Empowerment	39.3 ± 8.0	43.1 ± 11.0	48.9 ± 8.7

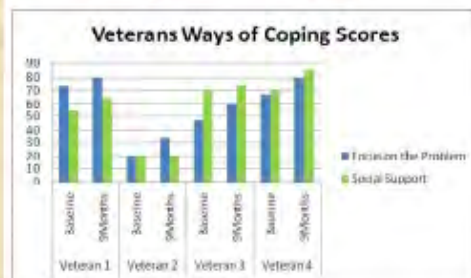
*Higher scores reflect poorer adjustment

Veteran Adjustment

Variable	Baseline	3 months	6 months
CES-D Depression Scale*	30.0 ± 6.2	28.1 ± 6.7	23.5 ± 11.4
AX Anger Management*	36.0 ± 10.1	35.9 ± 10.8	30.7 ± 12.2
Anger Control	20.0 ± 5.3	19.8 ± 5.6	23.4 ± 6.9
Outward Anger	16.8 ± 4.7	16.1 ± 5.2	14.7 ± 4.1
Internalized Anger	18.9 ± 4.8	18.7 ± 4.3	17.4 ± 4.2
SF-36 General Health*	3.3 ± 1.1	3.4 ± 0.9	3.3 ± 1.2

*Higher scores reflect poorer adjustment

Preliminary Results - Coping



Summary and Recommendations

- MFG can be successfully adapted for veterans with TBI and their families
- Preliminary results suggest participating family members had fewer depressive symptoms, less caregiver burden and a greater sense of family empowerment post-intervention
- Veterans with TBI reported fewer depressive symptoms, decreased anger and increased use of problem solving and social support coping

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